RESEARCH AND DEVELOPMENT

3 DECEMBER 1979 (FOUO 14/79) 1 OF 1

JPRS L/3793

3 December 1979

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

(FOUO 14/79)

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WORLDWIDE REPORT

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

(FOUO 14/79)

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JAPAN

MITI MAKES MAJOR CHANGE IN COMPUTER DEVELOPMENT STRATEGY

Tokyo NIKKAN KOGYO SHIMBUN in Japanese 6 Sep 79 p 2

[Editorial: "International Cooperation on Fifth Generation Computers"]

[Text] The Ministry of International Trade and Industry finalized its policy to have overseas researchers participate in the research and development of "the fifth generation computers" which is to become the nucleus for the promotion of the information industry in the 1980's. Compared with the past information industry strategy which was mainly "catch up, pass," with the U.S. IBM as the target, it is a major change in strategy. Contiguous with the rapid progress in electronics technology, computers not only serve as a powerful weapon to cultivate unknown fields, but also maintain an unshaken position as the starter of technological innovation. In this sense, to lead the research and development of the fifth generation computers which may be called un unknown region and to have opened the door of research to the overseas academic community suggest Japan's ambition to lead the "era of civilization development" as termed in the study material of the vision for the 1980's.

Computers have progressed by logical elements from the first generation using vacuum tubes, the second generation using transistors, and the third generation using integrated circuits (IC). Currently, the super-LSI is being developed and commercialized led by both the U.S. and Japan, and it is said that the appearance of the fourth generation mounted with a super-LSI, which incorporates new techniques in the means of communication and software, is very near.

Looking back at the history of computer development in Japan, at the start we fell behind various European and American countries, mainly the U.S. However, since the establishment of a single developmental structure combining government and commercial efforts in 1965, achievements in research and development made a great leap and have come to a point that is competitive with the giant of the computer world, IBM, in many fields. To begin the research on fifth generation computers ahead of other countries in such a stage and to have started the 10-year plan this year in order to consolidate the concept concretely, are perhaps regarded as important themes in developing a creative technology.

Furthermore, that the policy has been finalized to open the door to overseas researchers in such leading research and development is an epoch-making move that overturns the conventional developmental strategy by the base. As long as this is long-term research to be conducted from the 1980's to the 1990's, and that it walks in the untreaded field in the world, opening the research door to overseas does not damage the honor of the Japanese research group. In the study material of the visions for the 1980's compiled by MITI, the "international sense of space" is termed to advance internationalization with the sense of a global level and to develop the internationalization of the industry. One may state that it truly suggests taking an initiative in such an ultra-large scale research and to open the door to overseas researchers.

This policy of advancing fifth generation computer research by international cooperation will probably dissolve the overseas criticisms against the former information industry policies and suggest the research structure of the post-1980's.

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CSO: 5500

JAPAN

BRIEFS

VIRTUAL FILE MASS STORAGE--Nippon Electric Company (NEC) has developed a mass storage system (MSS) for its ACOS series computers (Sekino et al., Collected Speeches, 1979 Twentieth National Data Processing Conference, pp 63-70; Proceedings of 1979 National Computer Conference, vol. 48, pp 557-564). While IBM's MSS (3850) is virtual disk format, NEC employed a virtual file format which connects master data file (MDF) and disk sub-system to the host computer. Its special feature is the lack of direct data pass between MDF and disk sub-system which permits the use of existing optional disk as a staging disk sub-system. However, staging from MDF to disk sub-system is performed via the host system. Thus it will put 0-3 percent load (but no more than 10 percent maximum) on the host system. Yet MSS's capability (response time and throughput) is said to be superior to the IBM counterpart (1 VTOC/2 cartridge) because each data cartridge has label data. [Text] [Tokoyo NIKKEI ELECTRONICS in Japanese 6 Aug 79 p 77] 11460

CSO: 5500

USSR

EAST GERMAN HF AND VHF RADIO TECHNOLOGY VIEWED

Moscow ELEKTROSVYAZ' in Russian No 8, Aug 79 pp 5-9

[Article by Fritz Lang and Werner Liebig, German Democratic Republic: "The Contemporary State and the Prospects for Development of Short Wave and VHF Radio-Communications Technology in the GDR"]

[Text] Introduction. In the German Democratic Republic radio sets have been developed, produced and delivered to consumers both within the country and abroad for a number of years. Within the framework of CEMA, the GDR specializes in the development of short wave (HF) and VHF radio sets. In particular, a wide assortment of radio equipment which by its capabilities and qualities corresponds to international class items is being produced by the "Kepenik" plant. Because of the additional radio devices produced by them, it is possible to outfit various types of radio stations.

The basic parameters of typical units produced in the GDR are presented below, and a brief survey of the prospects for development of HF and VHF radio-communications technology is given.

SEG 15D and SEG 100D HF Transceivers (Table 1) are intended for transmission of information between stationary and mobile radio units. Using them, it is possible to establish short-term continental and transcontinental radio communications.

Basic parameters	HF transceiver units	
	SEG 15D (Fig. 1)	SEG 100D (Fig. 2)
Frequency range, MHz	1.5-12	
Frequency spacing, kHz	1	
High-frequency power, Wt	15	100
Types of modulation	A3J single-band service A2J telegraphy Telegraphy with FM F1	
Dimensions, mm	376x112x305	376x336x305
Weight, kg	7.8	28

The sets work on the principle of SSB modulation, insuring reliable transmission of information over long distances, even at insignificant power levels. Such modes of modulation as the A2J and the F1 are specified for transmitting telegraph signals. The sets are all fully transistorized and used integrated circuits.

The EKD series of HF receivers is intended for long-range telephone and telegraph communications (Table 2). The units are used by postal departments, departments of the press, the radio meteorological service and the maritime radio communications service as well as by other users. These receivers permit reception of single-band transmission with or without reinsertion of the carrier and with various channel bandwidths. Furthermore, they can be used to receive telegraph and fascimile signals.

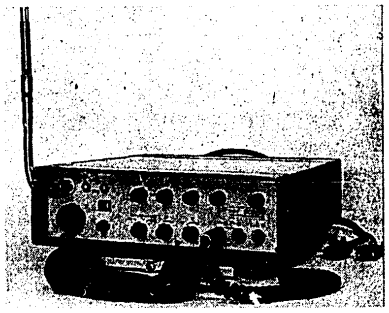

Fig. 1

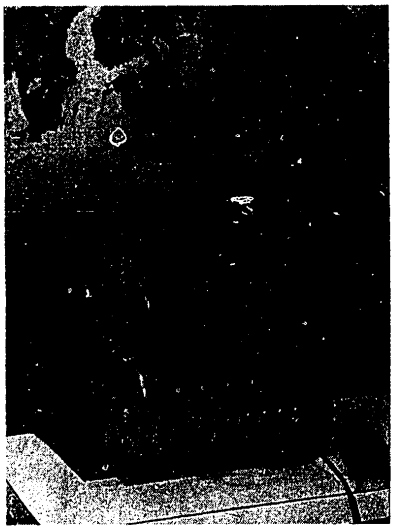

Fig. 2

The EGD series receivers are modified transceiver devices and are used primarily for operation in moving objects. It is possible to establish telephone and telegraph communications for a short time using these units. They are also transistorized and include many integrated circuits.

Commercial HF communications transmitters (Table 3) are intended for establishing long-range communications between stationary rediffusion stations and in coastal communications systems. Due to automatic tuning of the transmitter's stages, remote control servicing and a replaceable control system, these transmitters answer the modern requirements imposed on radio communications.

Table 2

Basic parameters	HF receivers		
	EKD 111/112 (Fig. 3)	EKD 300 (Fig. 4)	EGD 01, 02, 03 (Fig. 5)
Frequency range	14 kHz-30 MHz	14 kHz-30 MHz	1.6 MHz-12 MHz
Frequency setting	Decade, with switch	Decade, with push-button digital keys, almost continuous, 60 spaces per revolution, (with frequency memory as signal fades)	Decade, with switch
Frequency read-out	on the switches	with 7-digit digital LED line	on the switches
F1 indication	--		--
Frequency spacing	10 Hz	10 Hz	1 kHz
Types of modulation	A1, A2, A2H, A3, A3H, A3A, A3J, A3Ba, A3Bj, F1, F4 (E6 with additional device)		A1, A2, A2H, A2J, A3, A3A, A3J, A3H
Dimensions, mm	540x182x345	540x182x345	EGD 01-- 376x112x304 EGD 02-- 520x100x327 EGD 03-- 541x141x288
Weight, kg	25	about 35	EGD 01 - 8 EGD 02 - 10 EGD 03 - 13

NOTE: The EGD 01 is a table model device used as a stationary or a mobile receiver for the coastal radio service (upper and lower sidebands); EGD 02 is a pull-out unit used as the basic receiver for maritime radio communications (only the upper sideband); the EGD 03 is a table model device used as the basic receiver for maritime and coastal radio services (upper sideband only).

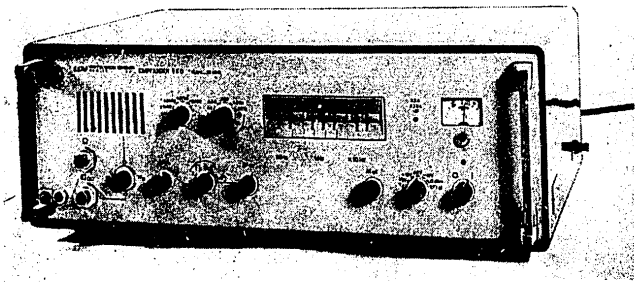

Figure 3

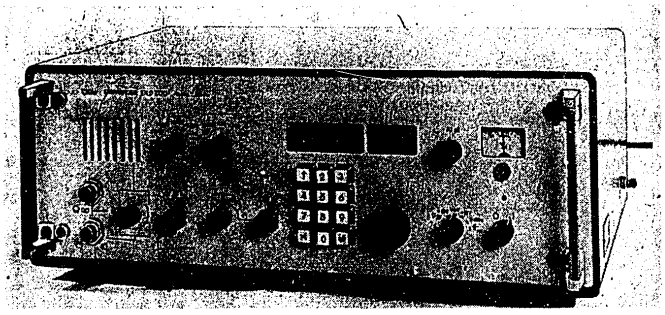

Figure 4

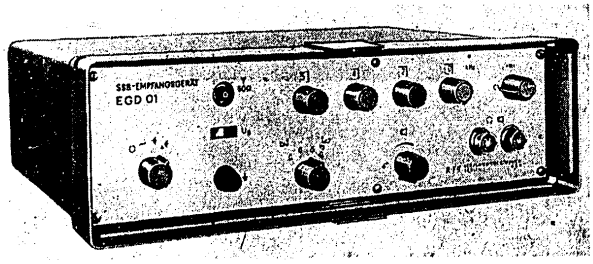

Figure 5

There are a number of additional units for outfitting radio rediffusion stations: a remote control unit; load resistances; antenna adaptors; wires and cables; balancing and matching transformers, etc.

VHF radio communications technology is finding more and more applications in all sectors of the national economy. Devices and installations are produced for mobile coastal radio communications. Several typical installations are represented in Table 4. In addition, various modifications and a broad assortment of additional equipment permitting these devices to be used in diverse areas are produced.

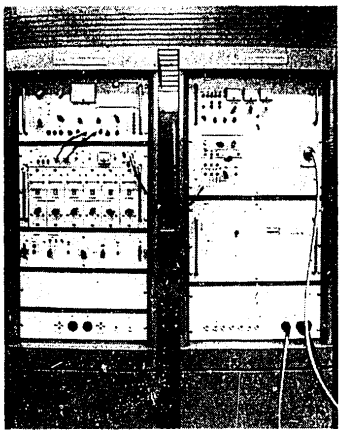

Figure 6

Table 3

Basic parameters	Commercial HF communications receivers		
	KN1-E (Fig. 6)	KN5-E/02	KN20-E/04
Frequency range, MHz	1.6-30	3-30	1.6-30
Frequency spacing, Hz	100	100	100
Power, kWt	1	5	20
Types of modulation	A1, A2H, A3A, A3H	A3J, A3Ba A3Bj	F1, F6

The 68-88MHz, 156-174 MHz and 450-470 MHz bands are used for mobile coastal communications in the GDR, FM being used exclusively.

All of the devices have contemporary design and are, for the most part, executed on hybrid and solid-state circuits.

Prospects for the development of HF and VHF radio communications technology. Technical progress is defined as an improvement in the quality indicators of equipment as well as a more extensive use of microelectronics. The growing integration of circuits permits us to reduce the dimensions and the weight of the installations and to improve their reliability. Furthermore, we are succeeding in improving the characteristics of the equipment substantially due to automation of control processes as well as in replacing several mechanized assemblies with electronic ones.

Automation of the control processes permits us to join individual installations into larger systems and, correspondingly, to organize a comfortable working place for the operator.

A tendency toward the increasing use of digital transmission and signal processing methods is observed in the area of circuit design. As examples, one may cite the use of digital frequency synthesizers as well as automatic and remote control using microprocessors.

Table 4

Basic parameters	UFT 721 portable transceiver (fig. 7)	UET 70 portable transmitter (fig. 8)	UFS 721 mobile transceiver (fig. 9)
Frequency range, MHz	146-174	146.174	146-174
Mode of operation	single-frequency or double-frequency simplex	single-frequency simplex	single frequency or double-frequency simplex
Number of channels	4	1	16
Interchannel interval, kHz	25	25	25
Transmission power, Wt	0.5	--	10
Receiver sensitivity, μV	0.55	0.55	0.5
a-f power, Wt	0.5	0.5	1.5
Dimensions, mm	180x85x45	180x85x45	60x203x220
Weight, kg	0.7	0.8	3 (without servicing unit); 4.5 with servicing unit

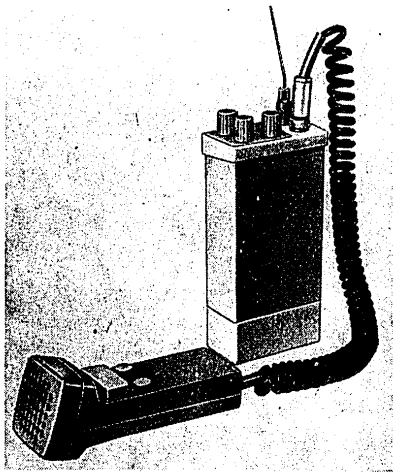

Figure 7

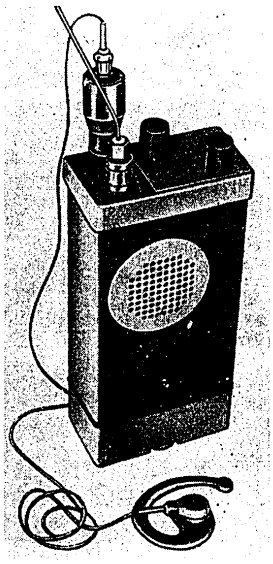

Figure 8

The use of solid-state elements and hybrid circuits (thin- and thick-film technology) is constantly growing. The amount of specialized circuits and radio installations is increasing significantly because multipurpose circuits do not provide the necessary level of optimization.

A decrease in required power has great significance for portable and mobile devices.

As a result of increased integration an increase has been achieved in labor productivity, both in production and in the use of the equipment.

In HF technology, the center of importance is being shifted from the development of large, stationary installations to the design of compact, portable devices, a fact which is expedited by the possibility of replacing stationary long-range communications stations with communications satellites. Similar tendencies are also planned in the area of maritime radio communications. Due to the possibilities which contemporary components offer (high accuracy, frequency stability, etc.) in HF radio communications, it is possible to make a connection automatically with a selective call using compact sets. The "Linkompeks" method is achieving great significance for improving transmissions.

In the area of VHF engineering, the creation of expanded radio networks with automatic connections is acquiring greater significance. The limited number of radio channels forces us to search for optimal methods for using them. Due to "cluster networks," i.e. systems with automatic selection of the free channel, it is possible to achieve a significant gain in channel-use time. Furthermore, the broad application of digital signals for transmitting regular messages also reduces the time the radio channels are occupied. Technical requirements for VHF devices which are directed at reducing mutual interference are constantly increasing due to the significant usage of the channels. This relates primarily to such parameters as interference emissions, interchannel modulation, adjacent channel selectivity, etc.

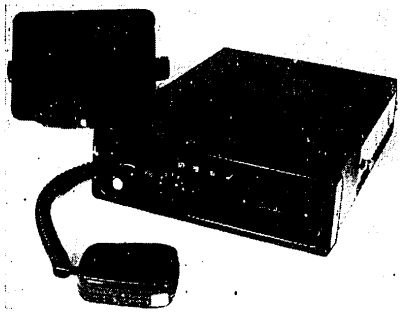

Figure 9

Special networks adapted to particular conditions are necessary for individual customers. One may cite locomotive radio communications which provides communication between the engineer, the dispatcher and other services at any point along the railroad line. Special solutions are being sought to improve production reliability, for example, for increasing the reliability of digital information transmissions and commands and preferential selection of radio communications channels in case of danger etc.

The specialists of the enterprises and institutes of the GDR are continuing to improve the systems and devices in accordance with the requirements imposed by users on modern radio installations.

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9194
CSO: 5500

USSR

HAM OPERATORS GRANTED ACCESS TO 1850-1950 KHZ IN 160-METER BAND

Moscow RADIO in Russian No 8, Aug 79 p 8

[Article by K. V. Ivanov, chief of the State Electric Communications Inspectorate of the USSR Ministry of Communications: "Working in the 160-meter Band"]

[Text] Soviet radio amateurs have greeted the decision by the USSR State Commission for Radio Frequencies to permit short-wave and vhf operators to use the 1850-1950 kHz frequency band (on a second-priority basis) with great enthusiasm. This is really an important event for them. The 160-meter band opens the shortest route to the air for novices and provides experienced shortwave operators with an opportunity to achieve new successes in the sport. The decision will help combat the ugly phenomenon of radio hooliganism. Many amateurs ask what they need to obtain permission to go on the air at 160 meters and ask that we familiarize them with the basic provisions of the "Temporary Instructions on Procedures for Using the 1850-1950 kHz Frequency Band by Amateur Radio Receiving and Transmitting Stations in Collective and Individual Use," which are now in effect. The editors asked K. V. Ivanov, chief of the State Electric Communications Inspectorate of the USSR Ministry of Communications, to answer these questions.

First of all, I should like to stress that the Instructions are aimed at giving young people interested in radio engineering an opportunity to master methods of working the amateur airwaves, of getting to know radio-sport.

These days, when the air is "populated" to the limit with various stations, the allocation of even a small portion of the 160-meter band just for radio-sport communications is an extraordinarily difficult matter. That is why amateurs are being permitted to use the 1850-1950 kHz frequency band only on a second-priority basis. Preference, meaning operation on a first-priority basis, is given to departmental radio stations of the national economy

in this frequency band, and if amateur radio stations interfere with them, they must either switch to an open frequency or shut down on first demand.

In addition to owners of category I, II and III amateur radio stations for individual and collective use, which can henceforth operate on the 1850-1950 kHz frequency band, a new group is introduced -- novice amateur radio operators age 14 or over. They obtain permission at the local electric communications inspectorate to operate on the air. To do this, novice amateur radio operators 14 or over, that is, young students (schoolchildren studying in tekhnikums or at vocational-technical schools) need to submit through the appropriate DOSAAF sports club (committee) at their place of residence an application, a recommendation from their place of training, a diagram of the radio station, and also the written consent of the head of the family (if the amateur has not reached age 16) stating that he is not opposed to giving his son (or daughter) permission to build (acquire) and operate an amateur radio station and that he assumes responsibility for ensuring that he (or she) will follow the Operating Instructions and Equipment Safety Rules.

Novice amateur radio operators will be assigned call letters with series EZ prefixes. For example, the call letters for amateurs in Moscow Oblast might look like this: EZ3DAA.

Now a few words about operating procedures. As we know, communication over the airwaves is brief and laconic. But it is quite sufficient to exchange information about the audibility and discriminability of the station tone, technical data on ham apparatus, and so forth. Telegraph and telephone communications are permitted only to convey information contained in Q codes and the international amateur's code. In this regard, the playing of records and tapes is categorically prohibited.

It is probably clear to everyone that one encounters amateurs with call letters on the air. But how would it be if a novice tried to call a radio hooligan on the 160-meter band? An experienced shortwave operator would act unequivocally, demanding that such a station shut down and act in precise accord with the Instructions. And that's just what everyone should do.

As concerns collective radio stations, amateur radio observers age 12 or over can now operate them in the 1850-1950 kHz band.

The question might arise: what about novices over 16 who want to go on the air at 160 meters? The new "Temporary Instructions" extend to them, but if they want to operate on all amateur bands, the "Instructions on Procedures for Registering and Operating Amateur Radio Receiving and Transmitting Stations in Individual and Collective Use" will be in effect.

If amateurs with series EZ call letters want the right to use other amateur bands along with the 160-meter band after they reach age 16, they will have to obtain series U or R call letters on general grounds.

The following types of radiation are permitted in the 160-meter band: 1850-1950 kHz -- 0.1A1 (telegraph); 1875-1950 kHz -- 3A3A, 3A3J (single sideband); 1900-1950 kHz -- 6A3 (AM). Maximum transmitter power: category I radio stations -- up to 10 W, category II and III and novice radio stations -- up to 5 W.

Certain requirements are naturally made of transmitters made by amateurs. Novice radio stations must ensure a relative frequency stability of not less than 0.02 percent for 15 minutes after going on the air. In this regard, the transmitter operating frequency must not go outside the frequency band indicated in the permission to operate the radio station in any case. Telegraphs must not be operated with a tone worse than T-7, nor telephones with a modulation below M-4, and transmitters must not have parasitic radiations.

The permission to operate an amateur radio station is effective for one year.

Large tasks now face the amateur radio operator community and DOSAAF organizations. The radio-sport federations, shortwave committees and DOSAAF sports club councils should extensively notify all primary organizations of the Society, and especially those of general educational and vocational-technical schools, about the new procedure for registering novice amateur radio stations, operating procedures, and rules for conducting radio communications. Moreover, It is necessary to organize propagandist appearances in the press and broadcasts on the urban and rural radio relay network. Seminars and consultations with experienced shortwave operators are very beneficial. We should think about developing simple apparatus and should create designer groups for this purpose.

The State Electric Communications Inspectorate is very hopeful that permission for amateur radio operators to work in the 160-meter band will be valued by them as a great trust, that when on the air they will display great awareness and discipline, tact and sporting politeness. Operation in the new amateur radio band will be truely interesting and useful only if the ethics and rules of radio-sport are followed and the procedure for registering and operating radio stations is followed.

11052
CSO: 5500

FRANCE, FRG NEAR AGREEMENT ON DIRECT TV SATELLITES

Paris AIR & COSMOS in French 29 Sep 79 p 32

[Article by Pierre Langereux: "Negotiations on Direct Television Broadcasting Satellites"]

[Text] The French and German governments are expected to make a decision shortly on the collaborative project for joint production of new national direct television broadcasting satellites: the TVSAT in Germany and the TDF-1 in France. The draft protocol of the intergovernmental agreement was forwarded to Germany in early September. The German cabinet is scheduled to discuss it in Bonn on 26 September. This question is also expected to be on the agenda of the next Giscard-Schmidt summit to be held in Germany on 2 October.

At the 30th Congress of the International Astronautical Federation in Munich, Professor Hubert Curien, president of the French CNES [National Center for Space Studies], and Dr Strub, representing the FRG's Ministry for Research and Technology, told us that officials in both Paris and Bonn now want to reach an agreement quickly. In fact, German and French authorities consider this the propitious time for capitalizing on previous successful developments within the European framework and entering the direct TV broadcasting satellite market. Professor Curien explained that TDF (Television Broadcasting of France] has a requirement for a national TV broadcasting satellite (TDF-1). Dr Strub indicated that the Deutsche Bundes Post was equally interested in the German TVSAT project.

Each of these national satellites would have five channels, including three operational ones for retransmission of programs from two existing TV channels in each country--TF-1 and ANT-1 in France, ARD and ZDF in Germany--and for providing a new high-fidelity stereo radio service (18 programs per satellite) throughout the country. But other European countries are also preparing to employ direct TV broadcasting satellites. Luxembourg has announced it would like to lease part of the future satellites to broadcast RTL [Luxembourg Radio and Television Service] radio and television programs. The Scandinavian countries are also preparing a direct television broadcasting satellite project called Nordsat. European and American firms are competing for the Nordsat

contract. Italy which had initially considered collaborating in the German program, is also interested. So is Yugoslavia, etc. Farther from home, Communist China is planning to call upon European technology to install its national direct TV broadcasting satellite system.

Industrial Organization Still To Be Defined

Nevertheless, there are still a certain number of points to be settled to put the new Franco-German joint space project on a firm footing. Its organization will be a follow-on to the one established in 1967 for the Symphonie satellites, the first European communications satellites. One particular point still to be settled is definition of the working methods and procedures for the industrial organization grouping contractors from both countries. Aerospatiale in France and Messerschmitt-Boelkow-Blohm (MBB) in Germany certainly appear to be the leading national prime contractor candidates for the TDF-1 and TVSAT systems. Eurosatellite, a GIE [General Interest Group], was formed about 2 years ago by Aerospatiale and MBB for development of the experimental European satellite H-SAT, now replaced by a new ESA [European Space Agency] project, the L-SAT, for which a British firm--British Aerospace or Marconi--will be selected as prime contractor. But there is no assurance that this industrial consortium (Eurosatellite) is still the most suitable organization in the present case for production of French and German satellites. Moreover, Aerospatiale and MBB are fully aware of this, inasmuch as they have recently renegotiated new industrial agreements with this fact in mind.

In Germany, MBB has already been appointed prime contractor for the first pre-operational direct TV broadcasting satellite TVSAT (A3) to be launched in 1983. The Munich firm is associated in this program with Dornier, ERNO, AEG-Telefunken, and SEL.

In France, on the other hand, no firm decision has been reached since cancelation of the H-SAT project. It is now obvious, however, that in view of Matra's selection as prime contractor for the national communications satellite Telecom-1, Aerospatiale is counting mainly on the TDF-1 project--and its export prospects--to expand its space activities. Thomson-CSF will also be associated in development of the TDF-1 satellites.

Thus there is still work to be done on coordinating French and German industrial participation within a joint organizational structure and on defining the responsibilities of the prime contractors. It will also no doubt be necessary to spell out under what conditions the platform of the new direct television broadcasting satellites will constitute the base element of the "Ariane heavy platform" that is scheduled to complete the European launch vehicle's array of equipment for future missions.

On the other hand, it is now an established fact, as confirmed for us by Curien and Strub, that the first TDF-1 direct TV broadcasting satellites and even the TVSAT, will be launched exclusively with the Ariane rocket. The option of using the American Space Shuttle is no longer under consideration for the moment, and there is no other possible alternative, compared with the European launch vehicle!

8041
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FRANCO-GERMAN DIRECT TV SATELLITE COOPERATION NOTED

Paris AIR & COSMOS in French 6 Oct 79 p 51

[Article by Pierre Langereux]

[Text] The summit meeting between President Valery Giscard d'Estaing and Chancellor Helmut Schmidt, held on 1 and 2 October 1979 in Bonn, ended on a very positive note. The two chiefs of state decided that France and Germany will conduct cooperatively a program to build satellites for direct broadcasting of radio and television programs. As was expected (see AIR & COSMOS no 780), France and Germany will each have their own national direct television broadcasting satellite; this will enable them to make a new start in the Franco-German space cooperation begun in 1967 with the construction of the Symphonie experimental communications satellites.

Two Satellites for the End of 1983

For the first phase, it was decided to build two pre-operational satellites, one French (TDF 1) and the other German (TV-SAT), which will be launched beginning at the end of 1983 by the new European rocket Ariane, the CNES [National Space Studies Center] announced. There are also plans to manufacture the parts for a third reserve satellite. Therefore, the launch of the first French direct television satellite will take place a little later than expected: at the end of 1983 instead of the beginning of 1983. And this will be only a pre-operational satellite, which will have a partially experimental nature, at least at first. The launch of the operational satellies should take place towards 1985, according to the German plans. France and Germany will then be the first countries in the world to be operating direct television broadcasting satellites.

The CNES also stated that for the French side, the prime contractorship for the "space segment" (satellites and control station) will be handled jointly by the CNES and TDF [Television Broadcasting System of France] during the development phase, then entirely by TDF in the operational phase of the TDF 1 system.

It is also planned that the satellites will be developed based on a common "platform"; the payload of each satellite can be developed by national industries to meet the specific requirements of the users. But the details of the project and especially the industrial organization needed for its completion both in France and in Germany still remain to be worked out. President Giscard d'Estaing of course "hoped that the French and German industries will work together in a coordinated manner" on this program. But still remaining to be settled is the thorny issue of the prime contractor for the direct television satellite platform, which will also be the first "Ariane heavy platform," and which may have other applications with the European rocket.

Germany is asking for a leadership role in direct TV satellites for its industries (primarily for MBB [Messerschmitt-Bolkow-Blohm]) in compensation for the French leadership in the development and manufacture of the Ariane launch vehicle (for which France paid 65 percent of the costs). But in France, Aerospatiale also wants to have a major role in the development of the direct TV satellites, especially since it lost the prime contractor's role in the national communications satellite program.

The issue is important since the development of these direct TV satellites will enable the French and German industries to move into a dominant position in a still untapped world market, without fear of American competition.

In principle the French and German satellites are to be used for the national needs of each country, with two channels for the retransmission of TV programs from the existing channels (TF 1 and ANT 2 in France, ZDF and ARD in Germany), with the third channel to be used either for a new stereo radio service (up to 18 programs) or for broadcasting a new TV channel.

On this point, President Giscard d'Estaing made it clear that "the national consequences of the use of such technology will, of course, have to be examined with great care by the government experts or agencies most competent to deal with these matters."

A Television Satellite for Luxembourg?

This could lead us to suppose that France--like Germany--intends to keep the future direct television satellite for its own use, without sharing it. Germany has asked France not to make its satellite, or even just one channel, available to foreign users, and in particular to Luxembourg, for broadcasting RTL [Luxembourg Radio-Television System] programs. This is the condition on which hinges the FRG's agreement to a Franco-German cooperation program on direct TV satellites, said a German spokesman before the Bonn summit.

This comes as no surprise to the CLT [Luxembourg Television Broadcasting Company], which operates the RTL. The head of the CLT, Gust Graas, recently told LE MONDE that it was "not very likely that the French satellite would accept any frequencies except for French frequencies."

In these conditions, Luxembourg will have to launch and operate its own direct television satellite, as the international ITU [International Telecommunications Union] agreements provide. RTL is supposed to be ready to conduct the operation. A project cost study has even been requested from three satellite builders, including the British firm, British Aerospace Dynamics Group.

With such a satellite, RTL would be able to reach a public of about 100 million people in the heart of Europe with programs broadcast in three languages!

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TV SATELLITE SEEN COSTING 1.3 BILLION FRANCS

Paris AIR & COSMOS in French 13 Oct 79 p 52

[Article by Pierre Langereux]

[Text] The initial study and development phase for the Franco-German direct TV satellite program, agreed upon on 2 October 1979 in Bonn by President Giscard d'Estaing and Chancellor Schmidt, will cost 1.3 billion francs (1978 prices), said TDF [Television Broadcasting System of France], which, with the CNES [National Space Studies Center], will act as the prime contractor for the project for France. This initial phase calls for the construction and launch--at the end of 1983 using the Ariane launch vehicles--of two pre-operational satellites, one French (TDF 1) and one German (TV-SAT), plus the manufacture of parts for a third spare satellite.

The awarding of contracts to industry for the development of the satellites should, according to TDF, come in early 1980; this is 6 months behind the initial projectsions that called for a decision in April 1979 with the program to start in September-October 1979. Operating costs of the system and the construction of stations for controling the satellites and broadcasting television programs are not included in the cost announced previously. The French stations, which will be built in the Yonne department near the space communications center of Bercenay-en-Othe, will cost from 20 to 30 million francs, according to TDF. The costs of developing the special equipment (beamed antenna and receiver adaptation box) enabling it to receive the satellite transmission at 12 GHz are also not included: that is an industrial matter.

The cost of this initial phase--1.3 billion francs--is to be split equally between Germany* and France (which has not said how its share will be financed). But considering the French leadership in the development of the Ariane launch vehicle (financed 65 percent by France), Germany has demanded a "redistribution" on the direct TV satellites for the benefit of German industry, which will thus get a 54 percent share, with France getting 46 percent. Germany would thus take leadership in the development of the Franco-German direct TV satellites. All the details of the Franco-German agreement are not yet known, but the project discussed in Bonn calls for giving the prime contractorship to a Franco-German industrial group dominated by Germany, with MBB [Messerschmitt-Bolkow-Blohm] as the leader, primarily for developing the satellite platform in cooperation with Aerospatiale, but with a "redistribution" in favor of French industry (Thomson-CSF acting as coordinator) for the development of the payloads. The users, of which TDF is one, obviously prefer the payloads to be as similar as possible. But the discussions are still going on now--a Franco-German technical commission is to meet in Cologne on 15 October--to work out the specifications of the pre-operational satellites that will have to be as close as possible to the definition of the future operational satellites.

Beyond this initial phase, nothing has yet been decided. TDF says it plans to launch a second satellite 18 months after the first, as a backup, and that other satellites are then to be launched periodically to keep the service going. But a new bi-governmental decision will certainly have to be made before undertaking the development of operational satellites. That may come at the time of the next Franco-German summit scheduled in 6 months, in the spring of 1980. At that time, the availability of the Ariane launch vehicle--the keystone of the operation--should be assured, after the four flight qualification tests.

The establishment of the national direct TV satellite network depends in fact essentially on the prospects for its use. More precisely, the only real motivation for the French public to pay for the expensive additional equipment (2,000 to 3,000 francs per individual antenna, 10,000 francs for a community

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*German sources have mentioned a participation of 330 million DM, with 300 million DM from the BmFT and 30 million DM from the ministry of posts and telecommunications, which is higher than the figure announced by the French.

antenna) to receive satellite TV transmissions will come from the drawing power of the "new services" which are supposed to satisfy the aspirations of the majority--if not all-of the users.

Of course, the direct television satellite will complete the national coverage of TF 1 and ANT 2 programs, which will be less expensive than installing another 3,250 retransmitters (annual cost: 230 million francs). But that is of concern to only a minute part of the users.

The duplication of present services by satellite will enable the potential audience for our national programs to be extended beyond our borders, reaching approximately 100 million people, of whom 6 million are French-speaking. In addition to our national territory, the French satellite will cover the entire territory of Belgium, Luxembourg, Switzerland, and of course, Andorra, and Monaco, as well as almost all of England and the Netherlands and a good part of Austria (Vorarlberg) and of Spain (the northeast sector with Catalonia and the Basque region), Germany (the southwest, including the Rhineland and the Palatinate), Italy (Piedmont and Lombardy) and a small part of Ireland. The expansion and influence of French culture will certainly be increased, but that will only be of limited interest to the population of France itself, who expect "something different."

But it is precisely about these "new services" that the French government is being most "discreet."

We know that the pre-operational TDF 1 satellite of 1983 will have three channels, two to retransmit TF 1 and ANT 2 to the entire territory, but the use of the third channel has not yet been announced. That is an unknown factor.

As for future operational satellites in 1985, France has also planned to limit them to only three channels, while they could have five channels--with one TV program or 15 radio programs per channel.

Has it perhaps become impossible to reconcile the opening up of modern communications technologies with the protection of a monopoly in radio broadcasting?

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SPAIN

BRIEFS

INVESTMENTS IN TELEFONICA--Telefonica, which is made up of state and private enterprises that constitute the telephone monopoly, is going to invest a total of 120 billion pesetas in telecommunications. This represents a 37 percent increase over 1979. The scarcity of capital in the Spanish market and the restrictions placed on foreign loans by the government, however, make the realization of this project difficult. [Text] [Paris VALEURS ACTUELLES in French 29 Oct 79 p 80]

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